

What is claimed is:

1. A method for managing a defective area of a write-once optical recording medium having a data area and a lead-in area, comprising steps of:

5 firstly writing replacement data in a predetermined area, the replacement data corresponding to a defective area detected during a data reproduction operation; and

secondly writing locator information in the predetermined area, the locator information indicating respective positions of the defective area and the corresponding replacement data.

10 2. The method as claimed in claim 1, further comprising a step of:

thirdly writing an access pointer in the lead-in area, the access pointer for accessing the locator information written in the predetermined area.

3. The method as claimed in claim 1, wherein the predetermined area is a supplementary spare area assigned to one end of the data area.

15 4. The method as claimed in claim 1, wherein the locator information is written as defect list information, the defect list information including first information indicating a position of the replacement data, second information indicating a position of the defective area, and status information indicating a type of relationship existing between the defective area and the replacement data.

20 5. The method as claimed in claim 4, wherein the status information indicates at

least one of replacement data recording status, replacement data address assignment, defective area confirmation, and replacement area availability.

6. The method as claimed in claim 2, wherein the access pointer is written as disc definition structure information.

5 7. The method as claimed in claim 6, wherein the disc definition structure information includes a physical sector number of the locator information.

8. The method as claimed in claim 7, wherein the locator information is written in the lead-in area.

9. The method as claimed in claim 8, further comprising steps of:  
10 reading the disc definition structure information, to search a defect list by referring to the physical sector number of the defect list; and  
accessing and reading defect entries of the defect list, to locate the replacement data.

10. The method as claimed in claim 9, further comprising a step of updating a memory in accordance with a defect management operation of the optical recording medium.

15 11. The method as claimed in claim 9, wherein the defect list is a supplementary defect list.

12. The method as claimed in claim 1, wherein the predetermined area is located

before the data area.

13. The method as claimed in claim 12, wherein the predetermined area is a lead-in area.

14. The method as claimed in claim 12, wherein the predetermined area includes  
5 a first defect list and a second defect list.

15. A write-once optical recording medium comprising:  
a data area;  
a lead-in area disposed adjacent said data area;  
a defect management area, located in said lead-in area, for writing disc definition  
10 structure information including a plurality of write locations for accessing first defect list  
information pertaining to a data recording stage; and  
a predetermined area for writing a plurality of replacement data clusters pertaining to  
a data reproducing stage.

16. The optical recording medium as claimed in claim 15, wherein the  
15 predetermined area is a supplementary spare area located at one end of said data area.

17. The optical recording medium as claimed in claim 15, wherein the disc  
definition structure information further includes second defect list information for accessing  
the plurality of replacement data clusters.

18. The optical recording medium as claimed in claim 17, wherein the first defect list information is written in said data area.

19. The optical recording medium as claimed in claim 18, wherein said second defect list information is written in said predetermined area.

5 20. The optical recording medium as claimed in claim 17, wherein the first defect list information is written in said lead-in area.

21. The optical recording medium as claimed in claim 20, wherein said second defect list information is written in said lead-in area.

22. The optical recording medium as claimed in claim 15, wherein said data area, lead-in area, and defect management area are assigned per BD-WO standards.

23. A system having a programmable device for optically recording/reproducing data to/from a write-once optical recording medium having a data area and a lead-in area disposed adjacent thereto, said programmable device comprising:

means for firstly writing replacement data in a predetermined area, the replacement data corresponding to a defective area detected during a data reproduction operation;

means for secondly writing locator information in the predetermined area, the locator information indicating respective positions of the defective area and the corresponding replacement data; and

means for thirdly writing an access pointer in the lead-in area, the access pointer for

accessing the locator information written in the predetermined area.

24. The system as claimed in claim 23, said programmable device further comprising:

means for reading the disc definition structure information, to search a defect list by

5 referring to the physical sector number of the defect list; and

means for accessing and reading defect entries of the defect list, to locate the replacement data.